

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-61. (Cancelled)

62. (Previously Presented) A planarizing machine for processing microelectronic substrate assemblies, comprising:

a table;

a fluid container removably attached to the table, the fluid container is a bladder having a bottom section attached to the table, a sidewall projecting from the bottom section, and an elastic membrane, the elastic membrane being a top portion of the bladder integral with the sidewall, the bottom section and the sidewall having thicknesses greater than a thickness of the elastic membrane to define an at least semi-rigid support for the elastic membrane; the bottom section, the sidewall, and the elastic membrane defining an enclosed fluid chamber in the bladder.

63. (Previously Presented) The planarizing machine of claim 62 wherein the elastic membrane of the bladder is a rubber sheet.

64. (Previously Presented) The planarizing machine of claim 63, further comprising a support fluid in the fluid chamber to support the elastic membrane.

65. (Previously Presented) The planarizing machine of claim 64 wherein the support fluid comprises liquid water.

66. (Previously Presented) The planarizing machine of claim 64 wherein the support fluid comprises glycerin.

67. (Previously Presented) The planarizing machine of claim 64 wherein the support fluid comprises air.

68. (Previously Presented) The planarizing machine of claim 62 wherein the bladder comprises a uniformly resilient elastomeric material.

69. (Previously Presented) The planarizing machine of claim 62 wherein the elastic membrane is a non-perforated elastic membrane.

70. (Previously Presented) A planarizing machine for planarizing microelectronic substrates, comprising:

a table;

a fluid container removably attached to the table, the fluid container comprising a bladder including a bottom section having a first thickness attached to the table and a sidewall having a second thickness projecting from the bottom section, and an elastic membrane, the elastic membrane having a thickness less than the first thickness and the second thickness; the bottom section and the sidewall defining an at least semi-rigid support for the membrane; the elastic membrane being attached to the sidewall to define a fluid chamber in the bladder in a space between the bottom section and the elastic membrane.

71. (Previously Presented) The planarizing machine of claim 70, further comprising a support fluid in the fluid chamber, wherein the support fluid comprises liquid water.

72. (Previously Presented) The planarizing machine of claim 70, further comprising a support fluid in the fluid chamber, wherein the support fluid comprises glycerin.

73. (Previously Presented) The planarizing machine of claim 70, further comprising a support fluid in the fluid chamber, wherein the support fluid comprises air.

74. (Previously Presented) The planarizing machine of claim 70 wherein the bladder comprises a resilient elastomeric material.

75. (Previously Presented) The planarizing machine of claim 70 wherein the elastic membrane is a non-perforated elastic membrane.

76. (Previously Presented) A planarizing apparatus for use in a planarizing machine for microelectronic devices, comprising:

a pad support assembly having a bottom section of a first thickness, the bottom section configured to be attached to a table of the planarizing machine, a sidewall having a second thickness projecting from the bottom section, an elastic membrane having a thickness less than the first thickness and the second thickness; the bottom section and the sidewall defining an at least semi-rigid support for the membrane; the elastic membrane being coupled to the sidewall to define an enclosed fluid chamber, the bottom section, the sidewall and the elastic membrane being an integral component defining a bladder;

a support fluid in the fluid chamber; and

a planarizing medium coupled to the elastic membrane, the planarizing medium and the elastic membrane configured to flex in a local flex zone under a substrate pressed against the planarizing medium to provide at least a substantially uniform pressure distribution across the substrate.

77. (Previously Presented) The planarizing apparatus of claim 76 wherein the support fluid comprises water.

78. (Previously Presented) The planarizing apparatus of claim 76 wherein the support fluid comprises glycerin.

79. (Previously Presented) The planarizing apparatus of claim 76 wherein the support fluid comprises air.

80. (Previously Presented) The planarizing machine of claim 76 wherein the pad support assembly comprises a elastomeric material.

81. (Previously Presented) The planarizing machine of claim 76 wherein the elastic membrane is a non-perforated elastic membrane.